



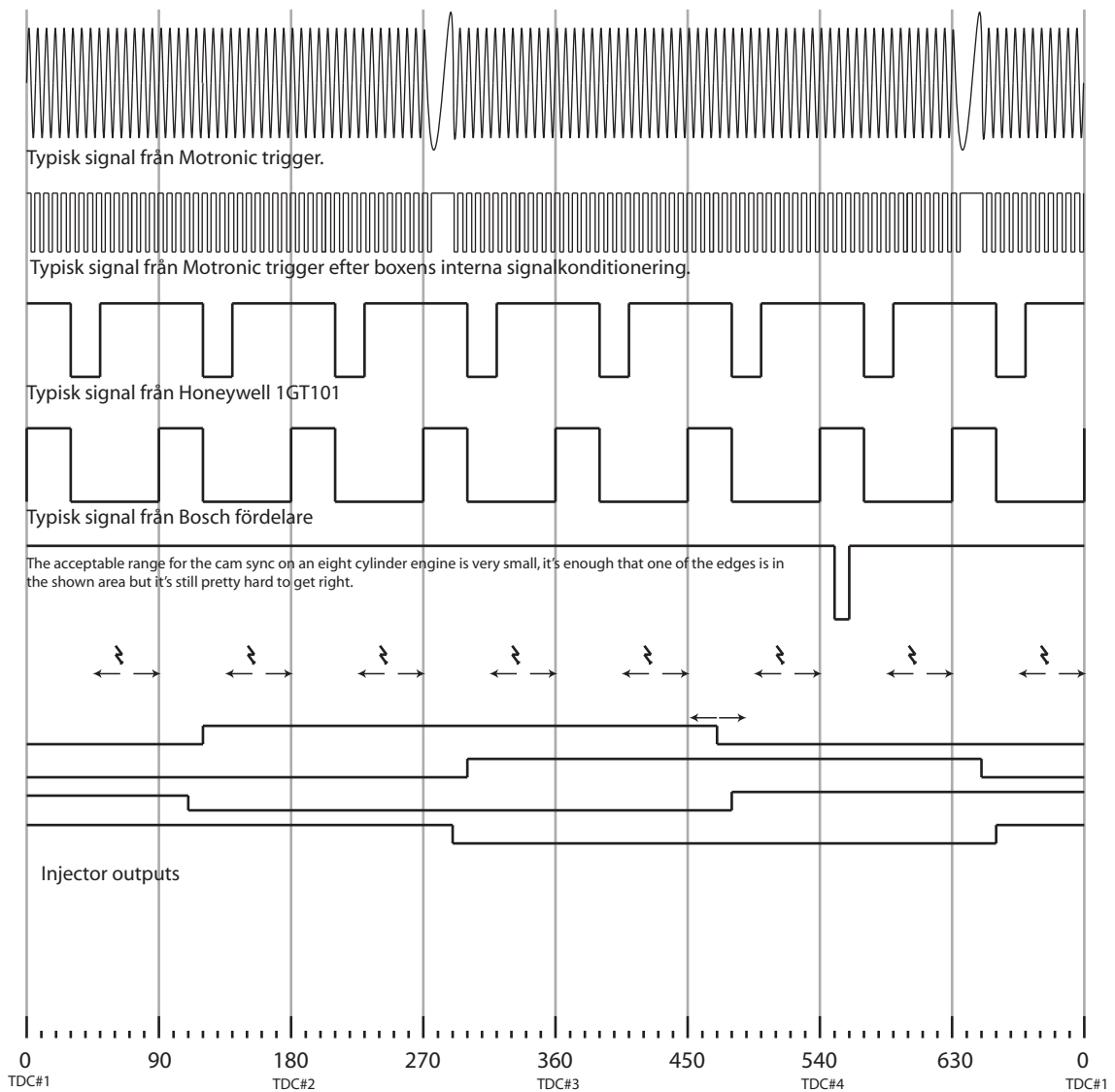
Versatile Engine Management Systems

To install and setup the triggers you need to be aware of the requirements of VEMS v3 version 1.0.36 and the terminology used. Our trigger alternatives for "primary trigger" is currently called "multitooth trigger" and "coil trigger". The only useful alternative for "Secondary trigger" is "cam sync".

If you use a VR sensor you have to trigger on the falling edge, most Hall triggers are best used on the falling edge as well as that edge is often steeper and therefore less sensitive to noise. With Hall senders you can however use the rising edge as well if that makes the timing of the trigger fit the requirements of the ECU better. You are advised to install the trigger in a way that make its falling edge occur at 60° BTDC. The acceptable range is 127° BTDC to max advance + 5°-10°. If you plan to run a maximum of 45° BTDC the trigger should not occur later then 50°-55° BTDC. You can currently have the trigger significantly closer then that but that may change in the future. TDC\_Delay specifies how many degrees BTDC the trigger occurs.

If cam sync (HOME) is used a falling edge has to occur some time after ignition in the previous cycle and before the next primary trigger. The 10° safety margin applies here too. On a four or six cylinder engine it's easy to meet this requirement but on an eight cylinder engine the allowed window is very small. Changes to the cam sync timing requirements is scheduled for this reason.

For the multitooth triggerwheel you only have to set the parameters; trigger\_tooth, another\_trigger\_tooth and TDC\_Delay. Trigger\_tooth set at which tooth after the two missing you want the ECU to trigger. On the trigger in the chart below trigger\_tooth=03 is suitable. Another\_trigger\_tooth sets how many teeth the ECU must count before it triggers again, this is always 15 for an eight cylinder engine with a Motronic 60-2 triggerwheel. TDC\_delay set how many degrees there is between the trigger point and TDC.



Crank degrees

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Most OEM equipment Hall sensors and optical sensors show a rising edge when metal covers the sensor and a negative edge when metal stops covering the sensor. The Honeywell 1GT101 sensor has a negative edge when a magnetic material enter the sensor range and a positive edge when it leaves the sensor range.